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# STRATEGIZING AND THE INITIATION OF INTERORGANIZATIONAL COLLABORATION THROUGH PROSPECTIVE RESOURCING

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**In this paper, we explain how managers establish resource complementarity during their strategizing efforts for interorganizational collaboration. Based on a longitudinal field study at an automotive company, we show that resource complementarity is not given but jointly constructed in interactions with multiple potential partners through recursive cycles of what we refer to as “prospective resourcing.” Prospective resourcing mediates the interplay of strategizing and collaboration, thereby reversing the prevailing logic that strategy precedes and determines collaboration. Our findings offer insight into resourcing as a mechanism for developing strategic initiatives and shows how external actors may influence strategizing.**

Interorganizational collaboration has become indispensable for accessing external resources needed to attain strategic objectives such as renewal and innovation (Ahuja, 2000; Majchrzak, Jarvenpaa, & Bagherzadeh, 2015; Parmigiani & Rivera-Santos, 2011). Many scholars have argued that organizations initiate collaboration to access *complementary resources* (Dyer & Singh, 1998; Eisenhardt & Schoonhoven, 1996; Harrison, Hitt, Hoskisson, & Ireland, 2001). Despite evidence *that* resource complementarity is important for the formation and

outcomes of collaborations (e.g., Hitt, Dacin, Levitas, Arregle, & Borza, 2000; Lin, Yang, & Arya, 2009), the literature offers little insight into the process of *how* resource complementarity is established.

Resource complementarity presents a theoretical and practical puzzle for firms initiating collaboration. A dominant assumption is that firms' strategic objectives determine the need for external resources (e.g., Teng, 2007), implying that resource complementarity can be known in advance (Soda & Furlotti, 2017), like a jigsaw puzzle that has missing pieces. However, the external resources needed for an innovative strategic initiative are likely to be distant and unfamiliar, making it difficult to know *ex ante* what can be accomplished with such resources and how they can be combined synergistically with other resources (Wang & Rajagopalan, 2015). Innovative strategic initiatives are often emergent, not fully articulated, and co-evolve with their implementation (Farjoun, 2002; Lê & Jarzabkowski, 2015; Mintzberg & Waters, 1985), offering insufficient guidance to determine which specific resources would be complementary. Thus, rather than seeing resource complementarity as a strategic condition that explains the initiation of collaboration, it is a condition that itself requires further examination.

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How managers establish resource complementarity during strategizing is an important issue to address, because early decisions are consequential for the progress of the eventual collaboration and for achieving strategic objectives (De Rond & Bouchikhi, 2004; Doz, 1996; Min, 2017), and collaborations that start off on the wrong footing are difficult to get back on track (Jap & Anderson, 2007). Therefore, we ask: *How do actors establish resource complementarity when initiating interorganizational collaboration for an innovative strategic initiative?*

We address this question in a longitudinal process study of the initiation of multiple new collaborations for an innovative strategic initiative at an automotive firm we call AutoCo. This initiative concerned the development of novel and complex digital services (e.g., to remotely monitor and adapt vehicle performance). Our analysis draws on the literature on strategizing (e.g., Mirabeau & Maguire, 2014; Whittington, 2017) and resourcing (e.g., Feldman, 2004; Sonenshein, 2014; Wiedner, Barrett, & Oborn, 2017).

Our inductive process analysis shows that resource complementarity is created iteratively, in interaction with potential partners through a process we call prospective resourcing. This process entails activities in which managers and partners collaboratively explore how combinations of resources may generate value, thereby jointly shaping strategizing as well as collaboration preferences. The novel elements of the strategic initiative offered potential partners opportunities to influence the emerging strategy. Their influence, as well as complex interdependencies between different elements of the strategic initiative, triggered radical changes in both the strategy content and in partner preferences, leaving some potential partners frustrated. We integrate our findings in a model of the specific processes of prospective resourcing that iteratively create resource complementarity by means of exploring, envisioning, and configuring resources in a synergistic whole.

As resource complementarity mediates the interplay of strategizing and initiating collaboration, our findings have implications for both. First, these findings contribute to the literature on interorganizational collaboration and resource complementarity. They counter assumptions that resource complementarity is a given that can be identified *ex ante* through managerial foresight or prior collaborations; instead, we find that when a strategic initiative asks for distant and unfamiliar resources, potential partners jointly construct resource complementarity through iterative

cycles of prospective resourcing. This entails a reversal of the relationship between strategy and collaboration—instead of strategy being a preexisting determinant of resource gaps, interactions with potential partners may also shape strategy as and when actors find emerging synergies. Second, with our prospective resourcing model, we contribute insight into how an innovative strategy emerges. More specifically, we show how strategy content is developed relationally during ongoing interaction between both internal and external parties and is prone to sudden reorientations. We find that potential partners can steer strategizing in the focal firm by strategically maneuvering their resources in the emerging strategic configuration. Third, we extend understanding of resourcing as a strategic mechanism by explaining the *configuring* of dispersed resources into bundles. Our findings shed light on how resource bundles obtain their strategic importance through mutually adjusting resource combinations and strategic objectives.

## STRATEGY, RESOURCE COMPLEMENTARITY, AND COLLABORATION

A key strategic explanation for interorganizational collaboration is that organizations seek access to complementary resources (Barringer & Harrison, 2000; Dyer & Singh, 1998; Eisenhardt & Schoonhoven, 1996; Lavie, 2006). Resource dependence theory argues that organizations depend on others for resources (Hillman, Withers, & Collins, 2009; Pfeffer & Salancik, 1978). The resource-based view places emphasis on the importance of resource *bundles* (e.g., Barney, 1991), arguing that benefits accrue particularly from combinations of internal and external resources that yield synergistic outcomes (Harrison et al., 2001; Ireland, Hitt, & Vaidyanath, 2002). Research has indeed firmly established that resource complementarity makes the formation of a collaboration more likely (Chung, Singh, & Lee, 2000; Hitt et al., 2000; Vasudeva, Spencer, & Teegen, 2013; Wang & Zajac, 2007) and enhances the probability of a collaboration's success (Lin et al., 2009; Murray, Kotabe, & Zhou, 2005).

Resources can be more or less complementary, depending on the degree to which they: (1) differ from the resources of a focal firm (Teece, 1986), (2) offer synergies in combination (Dyer & Singh, 1998; Harrison et al., 2001), and (3) help to accomplish strategic aims (Ireland et al., 2002; Wang & Zajac, 2007). The value of a combination of internal and external resources depends on a firm's objectives (Soda & Furlotti, 2017). Organizations select collaboration partners to complement the resources they

lack internally to realize strategies that they cannot accomplish on their own (Capaldo, 2007; Diestre & Rajagopalan, 2012; Eisenhardt & Schoonhoven, 1996; Teng, 2007). For example, collaboration between Nike and Apple brought forth the Nike+ platform, connecting Apple iPods to Nike running shoes to create new running experiences and communities (Ramaswamy, 2008).

Past studies have provided two tentative answers to the question of how managers establish resource complementarity. First, resource-based scholars have deferred to the need for superior managerial insight to form expectations about resource combinations (Ahuja, Coff, & Lee, 2005; Barney, 1991; Barney & Arian, 2001; Tyler & Steensma, 1995). In this vein, Helfat and Peteraf (2015) theorized that cognitive processes could enable managers to see how resources may be deployed and that managers' superior cognitive abilities could lead to strategic foresight. Second, embeddedness in social relations may alert managers to possible external resources and complementarities (Granovetter, 1983; Gulati & Gargiulo, 1999; Li, Eden, Hitt, & Ireland, 2008; Wang & Rajagopalan, 2015). Network relationships and prior collaboration experiences enhance actors' awareness and understanding of relevant external resources (Dyer & Singh, 1998; Gulati, 1995).

Both lines of reasoning assume that resource gaps can be known in advance like the missing pieces of a jigsaw puzzle. This "missing pieces" assumption implies that actors can specify resource complementarity—how the puzzle would fit together as a whole—before collaboration is initiated. For instance, Soda and Furlotti (2017: 369) assume that the aims of collaboration "are analyzable *ex ante* in terms of the resources they require" so that organizations can select external partners to fill resource gaps for strategic initiatives (Teng, 2007). So far, phase models of collaboration have reinforced the idea that strategy is a pre-existing driver of collaboration (Dwyer, Schurr, & Oh, 1987; Gulati, Wohlgezogen, & Zhelyazkov, 2012). Such research takes strategic motivations for collaboration for granted (e.g., Ring & Van de Ven, 1994), suggesting that the definition of strategic objectives and partner selection criteria precedes collaboration (Gulati et al., 2012; Holmberg & Cummings, 2009).

When it comes to innovative strategic initiatives, however, it is unlikely that managers can determine in advance which specific resources they will need and how the pooling of resources might generate strategic value (Wang & Rajagopalan, 2015). The mere fact that resources are "different" does not

make them complementary—not every collaboration between an electronics firm like Apple and a sportswear firm like Nike will be synergistic. If external resources are very different from a focal firm's own internal resources, managers will be unable to ascertain in depth what can be achieved with these resources in combination (Parkhe, 1991). Although managers may have some initial ideas about the external resources they need, what they cannot ascertain from considering those resources *ex ante*—in isolation—is the synergy that resource combinations will create. The effect of combining resources is causally ambiguous (Reed & DeFillippi, 1990). This is particularly so for innovative strategic initiatives that require novel, complex combinations of distant resources (Davis, 2016; Sydow, Windeler, Schubert, & Möllering, 2012; Tatarynowicz, Sytch, & Gulati, 2016). To create such novel, complex resource combinations, organizations may need new partners—instead of only embedded contacts (Li et al., 2008; Mitsuhashi & Min, 2016)—and multilateral collaborations (Ansari, Garud, & Kumaraswamy, 2015; Davis, 2016). Therefore, the potential value of resource combinations is indeterminate in the context of novel and complex strategic initiatives, and establishing resource complementarity poses a conundrum for managers that calls for further explanation.

### Strategizing and Resourcing

To understand resource complementarity as a process instead of an initial strategic condition, we turn to process perspectives on strategy and resources. Research on strategy processes and strategy-as-practice converge in their focus on strategizing in action and the people involved in those actions (Burgelman, Floyd, Laamanen, Mantere, Vaara, & Whittington, 2018; Whittington, 2017). A key insight is that strategy is often emergent rather than fully articulated upfront (Mintzberg & Waters, 1985; Mirabeau & Maguire, 2014). Strategy is emergent when it evolves as a result of actions taken and new experiences gained over time so that strategy formulation and implementation develop iteratively (Lê & Jarzabkowski, 2015; Mintzberg & Waters, 1985; Paroutis & Pettigrew, 2007; Quinn, 1980). Moreover, strategic insights may originate not only from people at the top of an organization but also from autonomous bottom-up strategizing involving peripheral actors (Mirabeau & Maguire, 2014; Regné, 2003) who iteratively advance initiatives (Burgelman, 1983; Kannan-Narasimhan & Lawrence, 2018; Noda & Bower, 1996).

The connection between strategy and resources has been forged by the resource-based view, which argues that strategy content should leverage the value that resources offer (Wernerfelt, 1984). However, empirical insight into the process of how bundles of resources obtain strategic value is thus far limited (Sirmon, Hitt, & Ireland, 2007; Sirmon, Hitt, Ireland, & Gilbert, 2011). The resource-based view conceptualizes resources as tangible or intangible objects that enable strategy formation and realization (Barney, 1991; Barney, Ketchen Jr., & Wright, 2011), but this perspective has been criticized as a static conceptualization that foregrounds innate qualities of resources (Kraaijenbrink, Spender, & Groen, 2009) without explaining how resources gain their strategic value.

To understand the actions by which resources gain value, we turn to literature on resourcing (Feldman, 2004; Howard-Grenville, 2007; Sonenshein, 2014; Wiedner et al., 2017). Rather than seeing resources as having inherent value, practice theorists suggest that the value of a resource arises from its meaning in interrelated practices (Bourdieu, 1977; Giddens, 1984). The resourcing perspective makes a critical distinction between an object (i.e., a tangible and intangible asset that actors may act on, or a “potential resource”) and a resource (an object that has been acted on to make it useful) (Feldman & Worline, 2011; Sonenshein, 2014). *Resourcing* refers to the process through which actors turn potential resources—technologies, knowledge, material objects—into resources-in-use to accomplish objectives (Feldman, 2004). For instance, in times of rationing, homemakers used breadcrumbs as a means to continue making meatballs at a time when meat was scarce (Feldman & Worline, 2011). Thus, resourcing is accomplished through the actions people draw upon to put resources to use.

The lens of resourcing is helpful to understand how people pursue new interests and objectives (Feldman & Worline, 2016), such as in strategic initiatives (Howard-Grenville, 2007; Wiedner et al., 2017). Kannan-Narasimhan and Lawrence (2018) showed how actors reframed the meaning of resources to realize an innovative strategy. Skillful and creative use can turn the same potential resources into resources for different outcomes (Sonenshein, 2014). Such outcomes, in turn, can alter actors' objectives. Therefore, resources and the objectives that they support can be mutually adjusted in a recursive relationship (Feldman & Worline, 2011).

The specific *actors* involved in resourcing and strategizing influence how resources gain value for

strategy. Peripheral actors may have specific insights into the potential value of resources that they are familiar with (Kannan-Narasimhan & Lawrence, 2018; Regnér, 2003), and interactions with external actors can help to acquire knowledge for innovative strategies (Dobusch & Kapeller, 2017; Malhotra, Majchrzak, & Niemiec, 2017). For example, Wiedner et al. (2017: 848) showed how people's use of potential resources influenced “how and why change may (not) occur” in a strategic initiative. Moreover, to realize emerging strategies, people need iterative cycles to accumulate the resources needed for advancing and realizing a strategic initiative (Jarzabkowski, 2008; Noda & Bower, 1996).

To conclude, although extant research has assumed that resource complementarity is given and firms select partners to fill specific resource gaps, managers may not be in a position to know in advance what resources are needed and how external resources can be effectively combined into strategic outcomes. We draw upon a dynamic conceptualization of resources and strategy, shifting attention to how actors create strategic value from enacting resources in practice.

## METHODS

### Research Setting

We opted for a case in which the phenomena of interest were present to a high degree and were easily observable (Pettigrew, 1990). At AutoCo, an international automotive firm, we were able to gain early access to a new strategic initiative that would involve new collaborations. In March 2010, several senior managers followed a strategic hunch that vehicle usage data could be turned into innovative customer benefits and help to address AutoCo's strategic growth objectives. They set up the so-called “Connect” initiative to develop new digital services. By remotely connecting its vehicles, AutoCo aimed to analyze vehicle usage data (e.g., from sensors) to attain cost savings for its customers and internal cost savings.

This case exhibited the characteristics of innovative strategic initiatives with complex questions of resource complementarity to a high degree. First, the senior managers at AutoCo were acutely aware that they would be unable to develop this initiative without collaboration partners and that the partners would also have to invest in the initiative. Second, developing digital services was innovative for an automotive company—similar initiatives had

proven to be a major challenge for other automotive firms (e.g., Henfridsson & Yoo, 2014)—and so the AutoCo managers could not know exactly which resources they lacked at the outset. Third, the complexity of the initiative required collaboration with multiple partners, which made concerns about the complementarity of resources even more salient.

### Data Collection

We took an inductive approach to develop new theoretical insights while building on prior concepts where possible (Locke, 2001). We adopted a process research approach (Langley, 1999) to study the initiation of interorganizational collaboration as part of an innovative strategic initiative, involving activities prior to the formal negotiations and establishment of new partnerships (Das & Teng, 2002; Schilke & Cook, 2013). Taking a practice perspective on resourcing (Feldman & Orlikowski, 2011), we made detailed and fine-grained observations of people's actions.

We followed a group of senior managers at AutoCo—the “strategy team”—from June 2010 for 17 months. We attended key meetings, both internal and with potential partners, which formed a suitable unit of observation for tracing developments in a strategic initiative (e.g., Jarzabkowski & Seidl, 2008). The first author spent between one and five days per week either on site at AutoCo or at meetings with potential collaboration partners, observing 68 internal meetings and 34 meetings with potential collaboration partners (see Table 1). She took notes of what participants discussed and captured part of the communication verbatim. Whenever it was possible, she recorded meetings and transcribed parts of the conversation to complement her field notes. She also participated in many informal events such as lunches and dinners. After each day in the field, she expanded her notes into more elaborate field notes.

Alongside the observations, the first author interviewed strategy team members multiple times about their experiences of the strategic initiative. This amounted to 47 formal, semi-structured interviews and 65 informal interviews. As shown in Table 2, we sampled interviewees from different managerial levels—executive directors, non-executive directors, senior managers, and middle managers. Formal interviews addressed the objectives for the initiative, which aspects of the initiative were new or challenging for AutoCo managers, their actions, their interactions with potential partners, and their expectations of the potential collaborations. We mainly used informal interviews to further clarify what we

**TABLE 1**  
**Observation Data**

Observed meetings (types)	Number
(1) Strategy team meetings (weekly recurring starting October 2010)	35
(2) Other intraorganizational meetings and workshops (of which 7 half-day or day-long workshops)	33
(3) Interorganizational meetings (N=34, of which 15 half-day or day-long workshops)	
– ITConsult	2
– TechCom	8
– ITCorp	6
– TechVent	3
– ServiceCo1	2
– ServiceCo2	4
– ServiceCo3	2
– ServiceCo4	1
– HardwareCo1	1
– HardwareCo2	2
– HardwareCo3	1
– SalesCo	1
– HighTechCo	1
<i>Total number of observed meetings</i>	<b>102</b>

had observed. As themes emerged from the initial analysis, our later interviews became more focused (Locke, 2001).

To complement AutoCo's perspective, we interviewed members of the potential partner firms informally, before and after formal meetings and during social events. After February 2012, we held retrospective interviews with ten members of three potential partner firms using timelines to help them recall specific events and relate their experiences to factual data (Huber & Power, 1985). All formal and a number of the informal interviews were transcribed verbatim.

To further triangulate data collection (Jick, 1979), we created an extensive document database comprising 2,693 documents. The first author was copied in to the strategy team's email communications, and two members from two different departments gave us access to all sent and received emails about the Connect initiative, which included many conversations with potential partner firms. We collected documents such as PowerPoint presentations, memos, technical documents, meeting minutes, published news articles, company announcements, and Intranet sites. We imported all these documents into a database system that facilitated sorting and querying their content. We completed our field study at the end of February 2012, when the strategy team was involved in detailed negotiations with the various preferred partners to formalize the collaborations.

**TABLE 2**  
**Interview Data**

Interviewees	Department	Level	Formal	Informal	Total
Strategy team	Marketing	Mid	1	1	2
Sr Manager Business Development					
Sr Product Marketeer	Marketing	Mid	1	4	5
Director Business Development	Business Development	High	4	2	6
Connect Initiative Manager	Marketing	Mid	5	22	27
Director Marketing	Marketing	High	3	4	7
Director Commercial Services	Commercial Services	Mid	2	0	2
Sr Manager Technical Services	Technical Services	Mid	3	4	7
Sr Manager IT Services	Technical Services	Mid	3	2	5
Sr Manager Business Intelligence	Business Development	Mid	1	1	2
Director After Sales	After Sales	High	1	—	1
Executive Director IT	IT	High	2	—	2
Jr Manager Commercial Services	Commercial Services	Mid	1	1	2
Engineer Electrical System	Product Development	Mid	2	1	3
Chief Engineer Electrical Systems	Product Development	High	1	—	1
IT Purchasing Coordinator	Purchasing	Mid	1	—	1
Director IT Services	IT	High	2	—	2
Engineer	Product Development	Mid	1	—	1
Purchasing Coordinator	Purchasing	Mid	1	—	1
Director IT Division Purchasing	Purchasing	High	1	—	1
CEO	n.a.	High	1	—	1
Execute Director Purchasing	Purchasing	High	1	—	1
Executive Director Marketing	Purchasing	High	1	—	1
Group interview with subset of the strategy team	Various	High	2	15	17
Sr Manager ITConsult	ITConsult	High	1	3	4
Team Leader ITConsult	ITConsult	Mid	1	—	1
Sr Manager TechCom	TechCom	High	—	1	1
Team Leader TechCom	TechCom	Mid	1	—	1
Expert TechCom	TechCom	Mid	1	—	1
Sr Manager TechCom	TechCom	High	—	1	1
Director ITCorp	ITCorp	High	—	1	1
Expert ITCorp	ITCorp	Mid	—	1	1
Expert ITCorp	ITCorp	Mid	1	1	2
Expert ITCorp	ITCorp	Mid	1	—	1
<i>Total</i>			<i>47</i>	<i>65</i>	<i>112</i>

## Analytical Approach

We zoomed in on how resource complementarity evolved in interaction by following specific process analysis methods: an event list (Poole, Van de Ven, Dooley, & Holmes, 2000), a narrative strategy, a grounded theory strategy, and visual mapping (Langley, 1999). The complexity and multitude of data sources required that we took an iterative approach; we alternated between writing case narratives, doing inductive coding of the various data sources, and reading additional literature. To substantiate the creative leap in our theorizing (Locke, Golden-Biddle, & Feldman, 2008), we critically discussed emergent interpretations as a team—the authors who were less involved in data collection took an outsider perspective on the patterns identified by the first author.

**Step 1: Event list and case narrative.** We started our analysis alongside the fieldwork (Locke, 2001). Based on our observation notes, interviews, meeting transcripts, email communications, and meeting minutes, we created a chronological event list (Poole et al., 2000). We defined events as actions to advance the strategic initiative (e.g., decisions taken in internal meetings, workshops with potential partner firms). By querying our document database, we identified the occurrence and timing of events, and identified new evidence to substantiate and triangulate our analysis (Jick, 1979). The final list contained 273 events. We kept a log of underlying data sources per event to create a chain of evidence (Yin, 2009).

Furthermore, we wrote descriptive narratives (Langley, 1999) that gave voice to the experiences

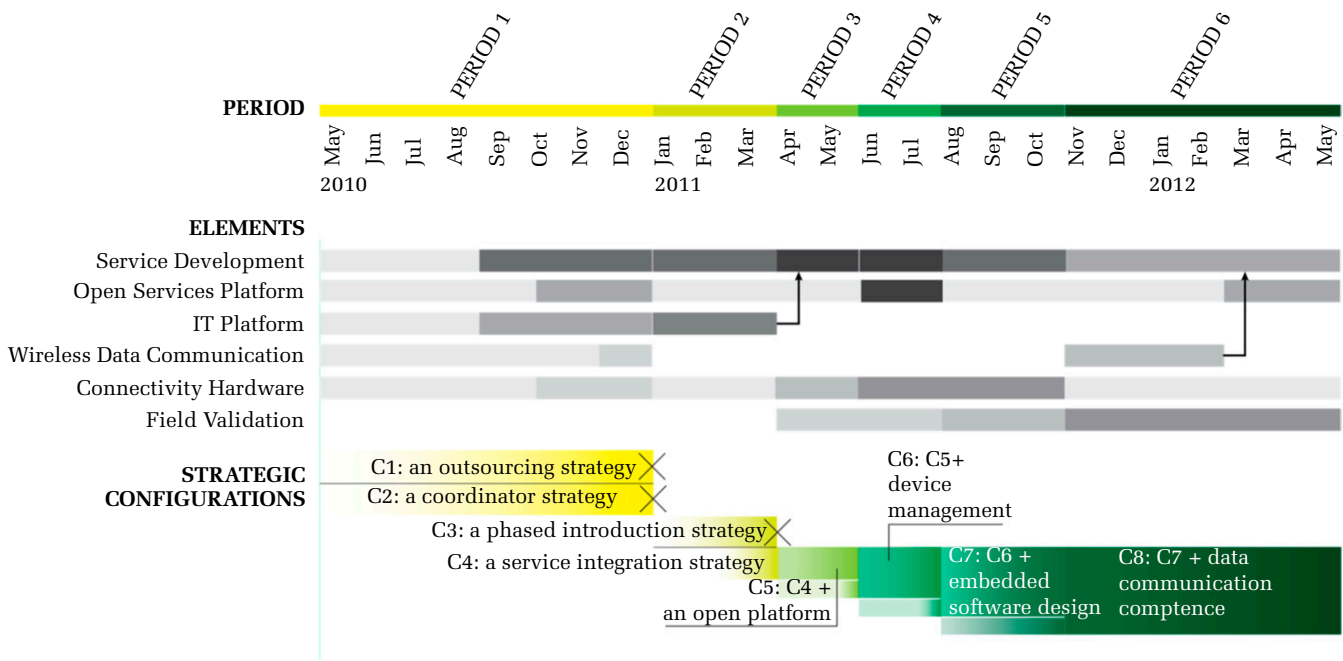
and considerations of the people involved by drawing heavily on expressions and verbatim quotes by people from AutoCo and potential partner firms. To enhance the trustworthiness of our interpretation (Lincoln & Guba, 1985), interviewees checked the emerging event list, and two key informants checked the case narrative for accuracy.

**Step 2: Inductive coding of the progression of the strategic initiative.** To analyze systematically how managers envisioned the Connect initiative—which specific strategic considerations, external resources, and partners they considered over time—we inductively clustered events by *element*. An element is a set of related actions regarding a specific part of the strategic initiative. We defined elements based on how our informants provisionally split up their work in loosely defined work packages. The elements in Figure 1 are those for which the AutoCo managers assumed they would need external partners. These elements progressed either in parallel or sequentially. For example, actions associated with developing the connectivity hardware element happened more or less in parallel to actions associated with the IT infrastructure element. Actions associated with the field validation element, on the other hand, only began after connectivity hardware and service development actions had been completed.

We noticed that the content of the elements could change substantially, particularly after early interactions with potential partners (see Table 3). Such changes in content occurred when managers were considering multiple elements together to create what we call *strategic configurations*. Strategic configurations consist of combinations of specific internal resources, external resources, and partners across the elements of the strategic initiative. They constitute an attempt to shape the strategy content of the initiative as a whole and to consider how multiple elements should come together. Strategic configurations differ according to the elements they feature and the emphasis placed on specific elements. The moments when strategic configurations shifted significantly impacted which resources and activities managers deemed necessary and which partners they considered suitable. We used these moments to define six periods with associated strategic configurations in the case history.

**Step 3: Analysis of progress to unpack interrelations between processes.** In the final step, we sought to explain the progress of creating complementary resource combinations by tracing how the configurations that defined the six periods came about. We noticed how interactions with potential partners

**FIGURE 1**  
Elements and Strategic Configurations in the Connect Initiative over Time





**TABLE 3**  
**Explanation of Elements of the “Connect” Strategic Initiative**

Element	Explanation	Novelty	Initial development and ideas on needed external resources
Service development	<i>Service development</i> refers to the creation of new services for customers and internal AutoCo stakeholders to realize cost savings. For example, by analyzing customers' driver behavior, the strategy team envisioned developing services for fuel-efficient driving. Furthermore, the analyses of vehicle usage data would provide actionable information for optimizing operational processes (e.g., by providing product engineers with usage data of components that failed, the design of such components could be optimized to lowering warranty costs). Interactions occurred with potential partners, notably ServComplete, ITCorp, TechCom, and ServeIT.	High	In July 2010 (Period 1), the strategy team started to identify the factors that influence the “total cost of ownership” of AutoCo's vehicles (e.g., fuel costs, parts replacement costs) to explore what sensor data could be used to realize cost savings. The strategy team interacted with internal stakeholders to identify what additional sensor data would be required for optimizing AutoCo's operational processes. In parallel, the team identified what resources were already in-house, for example related to sensor data. As was discussed during a strategy team meeting: “ <i>We need to know which applications we want to develop, and to facilitate that ... which sensors are already in place in the vehicle and which we need to add as part of the Connect initiative.</i> ” The strategy team realized they lacked knowledge on how to transform vehicle data into actionable information and how to present this effectively to customers and internal stakeholders. They started to discuss their plans with a broad range of potential partners, including transport management service providers and IT consultants.
Open services platform	<i>Open services platform</i> relates to an online marketplace where external parties (so-called “third-party service providers”) could offer their services to AutoCo's customers using the envisioned IT platform and vehicle data. The strategy team envisioned that current providers of transport management services could use AutoCo's open services platform as a sales channel. Interactions occurred with potential partners such as ElephantConsult, OilCo, ServComplete, and WorldServ.	High	The strategy team was inspired by the Apple AppStore platform. However, they realized that they lacked knowledge on what was technically needed to create such a platform and how to organize the involvement of “third parties” (e.g., what business models and partnership models would suit their plans). To explore suitable partnership models, from June 2010 onwards (Period 1) the strategy team contracted potential partners (including transport management firms and firms such as OilCo, who had a specialized fuel management program). Also, they asked a consultancy firm for advice on potential business models. One of the strategy team members reflected: “ <i>We realize more and more how complex it is to deliver services like transport management firms do. We lack a background in logistics and are not experts in back office integration [at our customers].</i> ”
IT platform	<i>IT platform</i> refers to the set of IT components needed for capturing and analyzing the vehicle data transmitted through the <i>connectivity hardware</i> . Such components included databases, cloud services, and an online portal for customers to access the service interface. Interactions occurred with potential partners such as ServDes and TechCom.	High	The strategy team recognized that they lacked detailed knowledge on the possibilities of different <i>IT platforms</i> . Although AutoCo had an IT department that managed IT systems, the system they envisioned was radically different. Initially, they explored whether they could find a suitable IT platform “off the shelf.” Because available solutions were deemed insufficient, they began searching for potential IT partners such as TechCom. Furthermore, they lacked knowledge on how to create a service portal for customers. The strategy team discussed their ideas with various IT service providers, IT consultants, and service design firms. Through interacting in July 2010 with service design firm ServDes, one of the strategy team members reflected: “ <i>It fueled our thinking process. I now know what we need for realizing a basic customer portal for creating reports for our customers.</i> ”
Data communication	<i>Data communication</i> refers to the wireless connection needed to transfer data from the <i>connectivity hardware</i> to the <i>IT platform</i> and vice versa. Interactions occurred with potential partners such as M2MCom, TelCo, PhoneCo, SignalCo, and ServeIT.	Medium	The strategy team needed insights into how to establish data communication between AutoCo's vehicles and the IT platform; they also needed information on the data communication costs. As noted by one of the strategy team members: “ <i>We are reviewing what is out there ... for instance [M2MCom] is a large [data communication] player worldwide and could become our business partner. But for now, we are just exploring how to design the system ... we want to</i>

**TABLE 3**  
**(Continued)**

Element	Explanation	Novelty	Initial development and ideas on needed external resources
Connectivity hardware	<i>Connectivity hardware</i> relates to the hardware component that had to be developed and built into AutoCo's vehicles to capture information from the vehicle (e.g., fuel usage data; performance data; sensor data) and transmit it remotely to the <i>IT platform</i> . Interactions occurred with potential partners ( $n = 15$ ) including ServComplete, HardCo, HardDev, HardPrima, BoxCo, and SignalCo.	Low	<i>understand how they view things, what they propose. We are collecting knowledge.</i> " They contacted various potential partners in Period 1 (from December 2010 onwards). As suggested in Period 1 by a strategy team member: " <i>We lack knowledge of state-of-the art connectivity hardware: At this point, we have way too little information.</i> " Since AutoCo had longstanding relations with various hardware suppliers, they were familiar with companies that could potentially develop the required connectivity hardware. In Period 1 (from October 2010 onwards), one of the strategy team members initiated discussions with potential partners ( $n = 15$ ) by email, thereby scanning the market for possible connectivity hardware.
Field validation	<i>Field validation</i> refers to the activities to test whether the Connect strategic initiative could indeed realize the envisioned benefits for customers and AutoCo's internal processes. Interactions occurred with potential partners including TelCo, SignalCo, and ServAnalyze.	Low	For the field validation (starting Period 3), the strategy team decided to purchase off-the-shelf connectivity hardware for a number of test vehicles. As one of the team members estimated: " <i>We will use the system with actual customers, and I hope that this will speed up the process; we will learn a lot from such a validation.</i> " Furthermore, they decided to leverage AutoCo's existing IT systems, even though these were not deemed sufficient as a final solution. The strategy team also started to search for service providers who could provide the resources needed to analyze initial batches of vehicle data; this, it was believed, would help them to assess whether AutoCo could indeed develop services based on the data from their vehicles.

played a key role in how the strategy team perceived external resource value. Across all six periods, we identified a process that drove progress that we labeled *prospective resourcing*. Prospective resourcing refers to actions that turn external and internal resources into complementary combinations for future use. It consists of three sub-processes: *resource exploration*, which refers to interacting with potential partners to identify external resources that can potentially advance a strategic initiative by enabling understanding of precisely what such resources entail and of any possible outcomes that may be generated from their use; *envisioning resource use*, which refers to thinking through options for external resource deployment to further specify the resources a particular element of the strategic initiative may need; and *configuring resources*, which refers to aligning and integrating the developments of separate elements into synergistic combinations across elements to advance strategizing for the strategic initiative as a whole and hence the initiation of collaboration.

We analyzed the occurrence of these three sub-processes in each of the six periods and identified

iterative cycles of prospective resourcing across periods. By comparing these cycles and differences in progress, we arrived at a process model. By tracing changes in configurations, we uncovered the strategic behavior of AutoCo and its potential partners as sources of such changes. We reread our case narratives and formal interviews to further articulate the sub-processes of prospective resourcing during each period and the novelty associated with the different elements, thereby further substantiating our process model.

### COMBINING RESOURCES FOR THE "CONNECT" STRATEGIC INITIATIVE

When we analyzed the strategic initiative over time, we noticed a number of sudden changes in partner preferences and in the emerging strategy. These ranged from a strategy to fully outsource Connect's development to taking a central role in orchestrating different partners' input, to a strategy to develop parts in house. According to such changes, we have distinguished six periods in the case narrative. Each revolves around the design of

distinct *strategic configurations* and involves iterations through all three sub-processes of prospective resourcing (i.e., resource exploitation, envisioning resource use, and configuring resources). Below we will introduce the “Connect” strategic initiative and provide a description of how these sub-processes featured in each of the six periods (see also Table 4).

### The Connect Initiative

Strategizing for the Connect initiative began in August 2010 with the aim of extending AutoCo’s product portfolio with new, yet to-be-developed digital services based on real-time vehicle usage data. Through such services, the strategy team members believed they could realize strategic objectives such as lowering cost of ownership for their customers (e.g., by preventing vehicle parts from breaking down and supporting fuel-efficient driver behavior) and obtaining cost savings for AutoCo’s operational processes (e.g., by improving their product design and lowering warranty costs).

The team members realized all too well that they lacked the resources internally to further develop their ideas. They divided the initiative into five different elements—*IT platform*, *connectivity hardware*, *wireless data communication*, *open services platform*, and *service development* (see Table 3)—initially assuming that each would require a different partner who could bring in the needed external resources. At that point, they were in no position to specify which resources they were looking for (e.g., what kind of *IT platform* or what kind of IT partner) and therefore started collecting input from a wide range of potential partners, including world-leading IT consultancy firms, multinational hardware manufacturers, and telematics and transport service developers (see Table 3 for examples of the types of partners considered per element).

Table 3 provides an overview of elements ordered by novelty compared to existing knowledge and practices at AutoCo. Over time, some constitutive elements of the Connect initiative received more attention than others, as shown in Figure 1: the darker the shade of gray, the more attention an element received. Some elements also became subsumed under other elements as indicated by the arrows in Figure 1.

The emerging Connect initiative was developed in interaction with over 30 potential partners. Over time, it became increasingly clear what external resources could bring to the initiative and which specific complementarities would advance the initiative. For the different parts of the initiative to come

together in a synergistic whole, different strategic configurations were developed over time. This involved addressing many emerging, often unexpected interdependencies within and across elements to integrate them into strategic configurations. Initial strategic configurations were still ambiguous, whereas later configurations became more crystallized and specific. Only after six iterative cycles of prospective resourcing was AutoCo able to develop a strategic configuration where the resource combinations were sufficiently complementary. This more fully developed strategy allowed for the formal initiation of collaboration.

### Period 1: Comparing Two Initial Strategies: “Outsourcing” Versus “Coordinator”

Based on prior collaborations or in anticipation of a future collaboration, potential partners were willing to share some of their knowledge and demonstrate their capabilities. For instance, TechCom (a global IT firm) felt that AutoCo “was ahead of its competition” and that its digital services strategy was “highly innovative,” as one of its senior managers reflected and was thus positive about the prospect of being involved in the Connect initiative. In August 2010, the strategy team discussed possible *IT platforms*, with TechCom’s IT specialists. The discussions yielded many new insights about what would have to be developed for AutoCo to proceed with the Connect initiative.

Such discussions are examples of what we refer to as “resource exploration.” During the strategy team’s regularly scheduled Friday meetings, they used input offered by potential partners to develop particular elements of the initiative, which we refer to as “envisioning resource use.” Table 4 shows more examples of how resource exploration and envisioning resource use influenced each other per period with resources marked in bold. For example, the design of the *IT platform* affected how the *wireless data communication* would be managed, which in turn affected the design of *connectivity hardware*. Strategy definition interacted with the envisioned collaboration setup due to interdependencies between roles and responsibilities and how they might be split between AutoCo and potential partners. For example, ServComplete offered to deliver the *IT platform*, the *connectivity hardware*, and the *open services platform*, whereas more specialized partners (such as TechCom) could only deliver resources for particular elements that would then need to be integrated. We refer to this envisioning and comparing

TABLE 4  
Examples of Prospective Resourcing per Period ("Potential Resources" are Formatted in Bold Font)

Period 1 (May 2010 – December 2010)		
Resource exploration	Envisioning resource use	Configuring resources
<p>Example 1a (IT platform): The strategy team realized that AutoCo's IT department lacked the required <b>competence</b> in <b>IT platform design</b> for their envisioned Connect initiative: "<i>We needed to bring in the technical knowledge [about IT platform design] that we do not possess yet.</i>" "We asked TechCom to propose concepts how a generic [solution] would look like." The strategy team met with TechCom experts to identify what kind of <b>IT platform design</b> they would need. They needed to engage with partners such as TechCom since they could not simply send out a Request for Proposal: "<i>We can't simply send our list of wishes to partners as is. We really need to go the extra mile [and do this together]. We need to know what we can do in-house and what we want TechCom to do. We have not made those decisions yet.</i>"</p> <p>Example 1b (Connectivity hardware): Together with experts from HardCo, the strategy team members examined which sensor data the <b>connectivity hardware</b> should transmit, to realize the services they wanted to develop. They then specified what hardware they thought was needed and sent those specifications out as a "Request for Proposal" to fifteen potential hardware firms, which yielded fifteen different proposals.</p>	<p>Example 1a (continued): The strategy team gained insights from interacting with TechCom regarding the specific <b>IT platform components</b> they needed, rough development costs, and options for structuring a potential partnership with TechCom.</p> <p>Example 1b (continued): From these interactions with potential partners, the strategy team learned that there were no off-the-shelf hardware solutions suitable for the services they envisioned. Strategy team member: "<i>Their answer [regarding off the shelf solutions] was no . . . off the shelf solutions [we found] are tailored to a certain data communication protocol, which you can't influence . . . then you start making concessions regarding the data quality.</i>"</p>	<p>Example 1a + b (continued): The strategy team used the <b>knowledge gained</b> from interacting with various potential partners (including TechCom and different hardware firms) to further their strategy for the initiative during a meeting between the strategy team and other internal stakeholders. The team tried to develop an overall approach for integrating the envisioned inputs of potential partners (i.e., deciding "who" (which partner) will be involved in doing "what"). Two alternative strategic configurations were developed.</p> <p><b>Strategic configuration 1 (C1):</b> "An outsourcing strategy" that emphasized that a collaboration partner would integrate the parts supplied by other partners for the various elements. This approach relied on combining the broad range of resources by ServComplete, another company that already had developed relevant hardware and services. For this approach, only ServComplete was deemed to be a suitable potential partner.</p> <p><b>Strategic configuration 2 (C2):</b> "A coordinator strategy" that emphasized that AutoCo would be in charge of integrating the various parts developed by different partners. This approach relied on designing the necessary resources in house (e.g., <b>IT platform, connectivity hardware</b>). For this approach, various potential partners would be possible that would all contribute a small part of the initiative (e.g., ElephantConsult, OilCo, ServDes). Both strategic configurations were discounted during a senior management meeting (see also case narrative). The fit between AutoCo's strategic objectives and what could be realized with ServComplete's resources was deemed incompatible; furthermore, developing everything from scratch would allow the best possible strategic fit but would require too much time.</p>

TABLE 4  
(Continued)

Period 2 (January 2011–March 2011)		
Resource exploration	Envisioning resource use	Configuring resources
<p><u>Example 2a (IT platform):</u> Together with TechCom the strategy team explored how they could capitalize on AutoCo's existing resources (such as existing <b>IT systems</b> and <b>vehicle sensors</b>) to launch (parts of) the initiative in the market as soon as possible. During three subsequent workshops, the strategy team and TechCom jointly investigated which adjustments had to be made to AutoCo's existing <b>IT systems</b> to start implementing their initiative and upgrade to a full-fledged version later. Furthermore, they explored which analyses and services TechCom could develop based on AutoCo's internal resources in two daylong workshops.</p> <p><u>Example 2b (Connectivity hardware):</u> Based on the responses to the "Request for Proposal" received in Period 1, the strategy team could quickly review the proposals to identify which potential <b>connectivity hardware</b> partners had solutions that became closest to what they felt would help them to realize the full initiative. They considered HardCo as the only potential partner. During subsequent episodes of collaborative resource exploration with HardCo, the strategy team learned about the details of what functions HardCo's <b>connectivity hardware</b> could enable. As HardCo mentioned in an email to the strategy team: "[Thus] the main questions that need to be answered are, how feasible are these scenarios [i.e., the different phases in launching the initiative] and how does that impact the costs and timing of development."</p>	<p><u>Example 2a (continued):</u> As a strategy team member argued: "<i>TechCom helped us to find out how we can grow from using our existing <b>IT systems</b> in subsequent phases.</i>" The strategy team evaluated these insights during half-day meetings to decide, for example, which regions and customer segments they should prioritize for a phased introduction of the initiative to best meet their strategic objectives.</p> <p><u>Example 2b (continued):</u> The strategy team realized that HardCo had developed their <b>connectivity hardware</b> in a way that would support developing the services they envisioned for their customers. In particular, they were alerted to the importance of the <b>embedded software</b> on the <b>connectivity hardware</b> as a key aspect of the external resources they needed: "<i>What they can currently offer is much more advanced compared to the other fifteen [potential partners]. They have created <b>software</b> for their <b>connectivity hardware</b> that we can directly use ... Although <b>software</b> isn't their core competence, they have made this pre-investment so companies like us can use it as a stepping stone.</i>"</p>	<p><u>Example 2a + 2b (continued):</u> The interactions with potential partners TechCom and HardCo in particular, informed the emerging strategy, which the strategy team started referring to as the "phased introduction" (C3), where they aimed "<i>for maximum carry over from existing <b>IT systems</b>.</i>" Yet one month and many interactions later, the strategy team saw more problems than opportunities regarding this configuration.</p> <p><b>Strategic configuration 3 (C3):</b> "A phased introduction strategy," which emphasized leveraging existing internal resources (such as existing <b>IT systems</b> and existing <b>vehicle sensors</b>) and existing partnerships, such as with TechCom. Although this was the quickest option in terms of time to market, the strategy team concluded after much exploration with internal and external people that this combination of resources would not enable them to realize their strategic objectives. By the end of Period 2, this strategic configuration was discounted. HardCo was the only potential partner that could build <b>connectivity hardware</b> that could easily be retrofitted into AutoCo's existing vehicle design; existing partner TechCom was considered for adapting AutoCo's existing <b>IT platform</b>. In parallel, an alternative configuration was developed: <b>Strategic configuration 4 (C4):</b> "service integration strategy," which emphasized using <b>data analytics</b> as a catalyst for service development (see explanation in the case narrative Period 2). Through collaborative resource exploration with ITCorp, the strategy team had developed a preference for ITCorp as a "service integrator" partner. Various <b>connectivity hardware</b> partners were considered in this configuration.</p> <p>In Period 3, the strategy team continued developing the service integration configuration (C3).</p>

TABLE 4  
(Continued)

Period 3 (April 2011–May 2011)		
Resource exploration	Envisioning resource use	Configuring resources
<p>Example 3a (Service Development—Open services platform): After numerous conversations with the strategy team about service development, ITCorp understood the ins and outs of the Connect initiative. They saw opportunities for their resources in other elements of the strategic initiative and proposed a so-called <b>Software Development Kit “SDK,”</b> involving “third party” service developers on the envisioned <b>open services platform</b> (this element was highly novel for AutoCo, see Table 3). ITCorp asserted that their <b>SDK</b> seamlessly fitted AutoCo’s <b>IT platform</b> and that it would allow AutoCo to efficiently control third party services without having to manage all the individual relations with service providers.</p> <p>Example 3b (Open services platform): The strategy team scheduled meetings with potential third party service developers (e.g., WorldServ and ServComplete) to investigate whether these parties would indeed be able to work with ITCorp’s <b>SDK</b>.</p>	<p>Example 3a (continued): The strategy team realized that they could really benefit from a <b>SDK</b> solution, although they had not anticipated that they lacked resources for this part. ITCorp’s <b>SDK</b> was well received by the strategy team: “<i>what surprised me ... is that they have this SDK framework already integrated with their analytics tools that can help [third party service providers] to quickly create new apps, and that makes the development process very flexible. And they have already developed this framework!</i>” AutoCo realized that a partnership with ITCorp would also enable them to build an <b>open services platform</b>. During a strategy team meeting, they further scrutinized what the <b>SDK</b> solution would imply for involving third parties.</p> <p>Example 3b (continued): Although not all potential third party service providers reacted positively to the idea of working with ITCorp’s <b>SDK</b>, the strategy team, after long discussions, concluded that the benefits of the <b>SDK</b> solution outweighed the disadvantage of discouraging potential service developers.</p>	<p>Example 3a + b (continued): The strategy team realized that the envisioned service integrator could also play a role in organizing the <b>open services platform</b>. The activities regarding the <b>open services platform</b> were reduced to discussing plans with potential third party developers and the <b>SDK</b> resources were added to the Request for Proposal regarding service integration.</p> <p><b>Strategic configuration 5 (C5):</b> “Service integration strategy + open platform,” emphasized the <b>data analytics</b> resources from C4 and, among other things, the <b>SDK</b> solution as the most important external resources. Using the existing <b>SDK</b> from ITCorp would ensure congruence between the <b>IT platform design</b> and the <b>open services platform</b>—an interdependence between elements that had not yet been thought through (developed in Period 2). The strategy team now developed an even stronger preference for ITCorp as service integrator partner. This also affected their vision on other collaborations. For example, because of ITCorp’s ongoing cooperation with HardPrima, using HardPrima’s specific <b>connectivity hardware</b> would reduce the time-to-market and facilitate coordinating the different collaborations, making HardPrima the preferred connectivity hardware partner of the strategy team.</p>

TABLE 4  
(Continued)

Period 4 (June 2011–July 2011)

Resource exploration	Envisioning resource use	Configuring resources
<p>Example 4a (Service development–connectivity hardware): AutoCo's purchasing department required the strategy team to also investigate the resources of other potential partners for service development. These two other firms, TechCom and ServelT, had to overcome the negative perceptions about their potential contribution. As one of the strategy team members reflected: "<i>I simply don't see a role for a partner like TechCom to deliver this initiative.</i>" During a meeting with potential partner TechCom, the importance of <b>device management</b> became apparent. As Will, one of the strategy team members said: "<i>all the issues around device management, it wasn't included in ITCorp's proposal, and I don't know what that implies, I want to talk more with them to find that out.</i>" At first, Will's concerns were not shared by his fellow team members. Therefore, he asked TechCom and ServelT to present their plans for <b>device management</b> in upcoming workshops. TechCom scheduled a meeting with Will to discuss all the envisioned services to provide their experts with a solid overview of what they would have to support. Afterward, TechCom presented their detailed plans for deploying their <b>device management</b> resources to the entire strategy team. As a senior manager from TechCom reflected: "<i>With respect to our approach to device management you could really see the difference between our approach and those of others. We are all about creating a solid, integrative platform and not simply combining some data analytics and some IT components.</i>"</p> <p>Example 4b (service development–connectivity hardware): Will organized further interactions with potential partner ITCorp to inquire about their plans for <b>device management</b>. After Q&amp;A sessions with all three potential partners regarding their proposals, he reflected: "<i>[the lead architects at ITCorp] quickly stepped over the device management topic and said: 'Ah we need to develop that part further, it is not such a big issue'; and you know, that really convinced me that they are unable to do what TechCom can.</i>" Afterward, ITCorp updated its proposal and submitted it to the strategy team.</p>	<p>Example 4a (continued): After the workshop with TechCom, the strategy team members dedicated their weekly strategy meeting to discuss the relative importance of <b>device management</b> and <b>data analytics</b>. They decided to incorporate <b>device management</b> as an important sought-after external resource in the search profile of their service integrator partner. Specifically, they emphasized the <b>embedded software design</b> as a key aspect to realize <b>device management</b>.</p>	<p>Example 4a + b (continued): During three day/long workshops, the strategy team ranked the potential service integrator partners based on the workshops and submitted proposals. During these workshops, the idea that <b>device management</b> would be important substantially shaped the ranking. "<i>[Device management] is a weak spot of ITCorp's proposal; they have completely overlooked that aspect. That makes us wonder, have they really understood what it is we are trying to achieve? Do they really get it? In that regard, TechCom is scoring much better.</i>"</p> <p><b>Strategic configuration 6 (C6):</b> "A service integration strategy + open platform + <b>device management</b>," which emphasized the importance of <b>device management</b> resources for a service integrator. The central role of <b>device management</b> in the strategic configuration reinforced the interdependence between the <b>connectivity hardware</b>, the <b>IT platform design</b>, and <b>service development</b>. The strategy team realized that they would need to go into more detail with their potential partners to further design the <b>embedded software</b> for the <b>connectivity hardware</b> to enable <b>device management</b>. The strategy team changed its collaboration roles and partner preference: from an initial preference for ITCorp as a service integrator to TechCom. ITCorp was officially discounted at the beginning of Period 5. The frequent and successful interactions during Periods 2 and 3 led to ITCorp being very disappointed by this decision. Being the first to be discounted left ITCorps senior managers frustrated: "The only reactions we got from [the strategy team] were very positive about our input and proposal [...] so you can understand how surprised we were, [...] We certainly won't be doing a project with AutoCo any time soon."</p>
	<p>Example 4b (continued): Will reflected: "My colleagues [fellow strategy team members] thought that ITCorp would simply put a plan together for <b>device management</b>." But after comparing the proposals of the three partners, Will became even more convinced that ITCorp was not the right partner for the job.</p>	

TABLE 4  
(Continued)

Period 5 (August 2011–October 2011)			
Resource exploration	Envisioning resource use	Configuring resources	
<p>Example 5 (Connectivity hardware–service development): The strategy team could not finish selecting the connectivity hardware partner because they needed more detailed specifications of the <b>embedded software</b> and needed to decide which partner would develop the <b>embedded software</b>: the connectivity hardware partner or the service integrator. The strategy team organized workshops between the remaining service integrator partners: TechCom and ServeIT reviewed the <b>connectivity hardware designs</b> of two competing hardware providers.</p> <p>Example 5b (Field validation–Open service platform): Collaboration with ServAnalyze for the field validation unexpectedly accelerated developments for the <b>open services platform</b>. ServAnalyze had adapted their IT platform in such a way that their services were now tailored to AutoCo's vehicles (for the field validation). Although the strategy team had considered WorldServ and ServComplete as their preferred partners for the <b>open services platform</b> since Period 3, services were already available from ServAnalyze.</p>	<p>Example 5 (continued): After the two workshops, the strategy team reconvened with internal product engineers to deploy their new insights to decide which <b>embedded software</b> specification and which <b>connectivity hardware</b> would best suit the respective platforms of TechCom and ServeIT. During this meeting, they made trade-offs to balance optimizing the integration of the <b>connectivity hardware</b> in AutoCo's vehicles and the integration with the <b>connectivity hardware</b> with the service integrator's <b>IT platform</b> through the <b>embedded software</b> specification.</p> <p>Example 5b continued: In a strategy team meeting, it was decided to prioritize the collaboration with ServAnalyze as the first third party service provider and integrate the services of WorldServ and ServComplete on the <b>open service platform</b> only after the planned launch of the initiative.</p>	<p>Example 5a + b (continued): In subsequent meetings, the strategy team decided that they could “<i>now prioritize the <b>connectivity hardware</b>, and to decouple it from selecting the [service] integrator.</i>”</p> <p><b>Strategic configuration 7 (C7):</b> “Service integration strategy + open platform + device management + connectivity hardware specification,” which emphasized that the development of the <b>embedded software</b> on the <b>connectivity hardware</b> is part of the tasks of the service integrator. As a result, the strategy team changed the specification of the resources they needed from a service integrator partner (TechCom or ServeIT) and connectivity hardware partner (which resulted in a preference for BoxCo and SignalCo). For the open service platform, ServAnalyze had become an unexpected launch partner.</p>	



TABLE 4  
(Continued)

Period 6 (November 2011–May 2012)		
Resource exploration	Envisioning resource use	Configuring resources
<p>Example 6a (Field validation–connectivity hardware–data communication): During a meeting with ServAnalyze (partner selected for the field validation), ServAnalyze's managers explained the complexity of <b>data communication management</b>: “We've had mixed experiences with <b>data communication</b> ... in Europe it's fairly low risk, South America and Asia is high risk. When you can't transmit data, [the hardware] will store it until the next transmission.”</p> <p>Example 6b (Connectivity hardware–data communication): In a subsequent workshop with ServelT, the business case for <b>data communication management</b> was discussed in some detail as “amounting to 60% of the costs.” ServelT suggested: “We are willing to arrange this for you. We have more <b>bargaining power</b> and our [embedded software design] can help you cope with peaks. Being able to dynamically deal with peaks is important to optimize costs and reliability too. ... we can <b>manage the chips in your [connectivity hardware ...] a Telco partner won't do that because they earn a lot of money from that.</b>” Thus, interacting with ServelT alerted the strategy team to the interdependence between the <b>connectivity hardware</b>, the <b>embedded software</b> specification (for the connectivity hardware), and <b>data communication management</b>. Although they had become aware that they needed external resources in the form of <b>connectivity hardware</b> and an <b>IT platform</b>, they only now began to see how these could be combined synergistically and what other external resources (e.g., a specific <b>embedded software</b> specification, <b>data communication management</b>, <b>carrier-switching technology</b>) they needed to realize the strategy.</p>	<p>Example 6a (continued): The strategy team members were alerted by ServAnalyze's story: “At my visit to ServAnalyze's office last week, I learned about all the issues with <b>managing data transmission</b>.” This alerted the strategy team that they needed external <b>competence in data communication management</b> and that they needed to align their <b>connectivity hardware design</b> with their <b>data communication</b> approach. During the strategy team meeting, it was decided to inquire about these issues at TechCom and ServelT.</p> <p>Example 6b (continued): After being triggered by the discussions with ServAnalyze, the strategy team was positively surprised by ServelT's <b>experience in managing the relation with a data communication partner</b>.</p>	<p>Example 6a + b (continued): The interactions with potential partners (including ServAnalyze, TechCom, and ServelT) resulted in an adjusted configuration:</p> <p><b>Strategic configuration 8 (C8)</b>: “A service integration strategy + open platform + device management + connectivity hardware specification + <b>data communication competence</b>” that emphasized the service integrator's role to optimize both the specification of the <b>connectivity hardware</b> and <b>embedded software</b> to reduce the data communication costs.</p> <p>This had implications for the search profile for the service integration partner: Although TechCom had been the team's preferred partner, they now preferred ServelT: “If you look at the bottom line, ServelT has a much more realistic proposal. They were the only ones who offered to organize the TelCo [data communication management].” TechCom was discounted as a potential service integrator. They had spent significant amounts until then and senior managers at TechCom were disappointed and angry. Contract negotiations started with ServelT.</p>

of different configurations of resources as “configuring resources,” which was a complex process as different elements were being developed in parallel with different potential partners. During resource configuring, the managers sought to establish complementarity via creating specific combinations of internal and external resources, the strategic objectives for the initiative, and the roles of the various collaboration partners.

In December 2010, two overarching strategic configurations dominated the discussions: an “outsourcing strategy” and a “coordinator strategy,” which implied different roles for AutoCo and its potential partners. In the “outsourcing strategy” (see C1, Table 4), the initiative would be fully outsourced to one partner in charge of combining external and internal resources and coordinating interdependencies between partners. In the “coordinator strategy” (see C2, Table 4), AutoCo would integrate the external and internal resources themselves through bilateral collaborations with specialized partners.

However, the strategy team soon realized that both configurations were equally undesirable. The interdependencies that would arise among the various parts meant that coordination could not be the sole responsibility of either AutoCo or an external partner, and the initiative was strategically too important to fully outsource. Instead, the strategy team prioritized developing some elements over others (visualized by darker shades of gray in Figure 1), starting with *service development*, a highly novel element.

## Period 2: Toward a “Service Integration” Configuration Using “Data Analytics” Resources

In January 2011, the team began anew. They first considered a “phased approach” as an alternative strategic configuration. The phased approach would rely mainly on leveraging internal resources (e.g., existing IT systems and vehicle hardware). They discussed this vision with various existing partners (for representative examples, see Table 4, Example 2a).

Then, a serendipitous encounter between John, the Director of Business Development and initiator of the strategy team, and Rob, a senior manager from ITCorp, led to another route. Rob was intrigued by AutoCo’s envisioned services based on real-time vehicle data and utilized the opportunity to pitch ITCorp’s competence in data analytics. The more John heard, the more his enthusiasm grew. He asked Rob to join the next strategy team meeting as a “sparring partner.” He reported to his fellow team

members, “I told [Rob and his firm] to surprise us with their tools, to show that they can do more than we can think of.” After Rob’s presentation, the other strategy team members were also positively surprised by ITCorp’s data analytics tools. In the following weeks, ITCorp and the strategy team repeatedly engaged in resource exploration—I TCorp showcased the use of their tools in different industries and the strategy team began to envision new services, which helped to assess the potential value of ITCorp’s analytics competence.

These examples of resource exploration show that before interacting with ITCorp, the strategy team had not yet identified concrete resource needs. Only after ITCorp’s demonstrations did the strategy team understand enough about data analytics resources to see the potential value of these resources for their strategic initiative, understandings that enabled them to specify the other resources they lacked more precisely (e.g., *connectivity hardware*, *IT platform*). Thus, resource exploration familiarized managers with external resources, which supported the identification of resource needs.

Through resource exploration with ITCorp, the strategy team came up with a new strategic configuration: a “service integration” approach where they would organize the *service development* by using data analytics tools integrated in an *IT platform* (see C4, Table 4). They fully dismissed the “phased approach” (C3). After ITCorp’s analytics resources had become a central part of the strategic configuration for their initiative, ITCorp became the team’s preferred collaboration partner for service development.

## Period 3: How to Combine “Data Analytics” with Other Resources

Now that the strategy team had clarified the external resources they actually needed, they could envision how to combine analytics with their own resources and fit it into the initiative as a whole. For example, in April 2011, they scrutinized ITCorp’s input with internal product engineers to identify how to combine AutoCo’s engineering knowledge with the patterns that ITCorp’s data analytics tools could generate. Also, they tried to envision whether analytics would indeed enable them to lower their customers’ total cost of ownership. When the strategy team realized they had reached the limits of their understanding, they again collaborated with an analytics expert from ITCorp and performed some initial analyses using real data from AutoCo’s vehicles. These patterns were then further scrutinized by

AutoCo's product engineers and provided input for specifying the to-be-developed services.

These iterations between resource exploration and envisioning became more focused over time; interactions with potential partners provided insight into the potential uses of external resources, which shaped further envisioning of how external resources could be deployed to realize strategic objectives. The initial analyses of AutoCo's vehicle data enabled the managers to think more deeply about the role of data analytics in *service development* and to combine such external resources with internal resources (i.e., AutoCo's engineering knowledge).

Resource exploration regarding *service development* with ITCorp (see Example 3a, Table 4) also reframed AutoCo's ideas on the resources required for realizing the *open services platform*. Experts from ITCorp took the initiative by proposing their Software Development Kit (SDK) as a means to organize the involvement of third party developers. Being positively surprised what these resources could bring, the strategy team incorporated ITCorp's SDK as an integral part of their plans for the *open services platform*. This resulted in the strategic configuration "service integration through open platform" (C5, Table 4). This expanded the envisioned role of the service integrator partner from not only being responsible for coordinating *service development* and the IT platform but also to facilitating third party service developers on the *open services platform*. The centrality of data analytics and SDK resources in this strategic configuration made ITCorp an even more suitable partner. It also changed how the strategy team envisioned other collaborations (e.g., preferences for the connectivity hardware partner changed in C5, Table 4).

#### **Period 4: Discovering the Importance of Device Management Resources**

In Period 4, the strategy team furthered the initiative in line with a service integration strategy with an open platform (C5, Table 4). The strategy team had completed the Request for Proposal for their envisioned service integrator partner ITCorp, and they now also asked TechCom and ServeIT (an IT consulting firm) to submit a proposal. Initially, these moves were intended solely as benchmarks requested by AutoCo's purchasing department, but interactions with TechCom and ServeIT proved much more influential than simple benchmarks could.

In preparing the proposal, TechCom experts asked how the strategy team envisioned connecting the

*connectivity hardware* to the IT platform to enable *service development*. Their questions alerted Will, a strategy team member with engineering experience, to the possibility that they had overlooked important aspects of the *connectivity hardware*, notably what TechCom called "device management." He noted, "[TechCom's] people realize what an enormous effort is required [for device management]. But we really lack a clear plan, our people think 'our IT department can do that', but unfortunately it's not so simple." Will's fellow strategy team members felt he was making a mountain out of a molehill, which created tensions. In trying to convey his point of view, Will asked both TechCom and ServeIT to demonstrate how they would organize device management. TechCom presented various existing solutions they had developed that integrated *connectivity hardware* on their IT platform. These concrete examples alerted the other strategy team members to the complexities of their resource needs for device management.

This example illustrates that the potential partners' insight into resources not only shaped strategizing for particular elements but also for the broader initiative by uncovering unanticipated and complex interdependencies. In this case, the new insights changed how the strategy team envisioned service integration, and the embedded software for the *connectivity hardware* became a key means to control the Connect system's operational costs. This shifted the emerging strategy toward the embedded software (as part of the connectivity hardware) and further reduced the emphasis on the IT platform.

Because of these changes to their strategy, the partner selection criteria also changed. Although ITCorp had been the preferred partner, the strategy team began to feel that ITCorp's proposal fell short—especially on device management. Additional resource exploration with specialists from ITCorp and other potential partners (Example 4b, Table 4) led to the realization that "the robustness of the ITCorp platform for device management is [indeed] a huge issue." In early June 2011, the strategy team concluded that device management should become a central aspect of their service development strategy (see also C6, Table 4).

A week later, during the formal partner selection meeting in which potential partners were evaluated based on different selection criteria, ITCorp was the first of three potential partners to be discounted and TechCom came out first in the ranking. Rob, the senior manager at ITCorp, was very disappointed. He had invested much time and effort into organizing all

the workshops and had even performed initial analyses for them in March–April 2011 (Period 3). As a senior manager from ITCorp reflected: “We certainly won’t be doing a project with AutoCo any time soon.” This example underscores the complexities of interacting with multiple potential partners to develop several elements in parallel. Through the development of such elements, interdependencies between resources were identified (e.g., envisioning *service development* became interrelated with elements such as *connectivity hardware*) that would have to be addressed to create an effective strategic configuration.

### Period 5: Creating Further Synergies between External and Internal Resources

From August 2011 onwards, the Strategy Team faced more interdependencies that had to be addressed to create synergies: the development of one element became consequential for other elements, which resulted in unexpected changes in strategy and the associated collaborations (e.g., changing the third party service partner: see Example 5b, Table 4). Through continued iterations between resource exploration and envisioning resource use, the strategy team further concretized their strategy, facing the complexity of interacting with multiple potential partners.

In June 2011, additional tensions emerged as a result of interdependencies between attempts to specify the *connectivity hardware* and the *service development*. To finalize their offerings, specialists from TechCom and ServeIT asked 20 questions about the *connectivity hardware* design to help with the detailing of their IT platform for *service development* data (e.g., including data analytics and SDK tools). The strategy team struggled to answer the questions due to a sequencing problem: the design of the IT platform was still underspecified because they had not yet selected a *connectivity hardware* partner. However, to select a *connectivity hardware* partner, they needed to provide the three remaining candidates with the specifications for the IT platform (see Period 5, Table 4).

Up until that point, the developments related to the *connectivity hardware* had been straightforward compared to the multiple, daylong workshops abroad with more than eight AutoCo members present as part of *service development*. For example, in December 2010, a strategy team member had simply sent out “Requests for Proposal” to 15 potential hardware partners active in the automotive

industry (see Table 4, Example 1b). At that stage, the proposals were a sufficient indication of the technical possibilities and trade-offs between technical specifications and costs for the strategy team to update their specification and to select the most suitable proposals.

However, in September 2011, the strategy team needed more interaction to resolve their sequencing problem. They initiated a series of three-way workshops with the remaining *connectivity hardware* candidates, AutoCo’s internal product engineers, and either TechCom or ServeIT present. During these workshops, the potential hardware partners explained what was technically possible and which design decisions were to be made. In separate sessions, TechCom and ServeIT presented their respective plans for the IT platform and data analyses. After these exchanges, the parties began to recognize the synergy that could be realized by mutually adjusting different external resources (such as the IT platform design and specific components in the *connectivity hardware*) and internal resources (such as product engineering knowledge).

TechCom and ServeIT could now provide input on *connectivity hardware* specifications that would align these with their respective platforms. For one of the *connectivity hardware* designs, the potential synergy with the IT platform designs was found to be limited, and this *connectivity hardware* partner was discounted. By that time, these potential partners for *connectivity hardware* and *service development* had realized that it took much more time and effort to initiate a collaboration with AutoCo than they had expected. They felt that AutoCo was unnecessarily keeping their options open and was delaying the start of any formal collaboration. As a senior manager from TechCom reflected, “[AutoCo] had created certain expectations on our side, for instance about the people that would be assigned to the project, like the project leader. We could not simply keep these people reserved because AutoCo kept postponing their decision.”

### Period 6: Looking for a Partner with Strong Data Communication Management Capabilities

Although the strategy for the Connect initiative seemed to be coming together for AutoCo, some final twists and turns lay still ahead. The first notable change would result from insights gained during *field validation*. These insights changed developments in the *open services platform* in November 2011 (see Example 6a, Table 4), which ended up

having far-reaching consequences for *service development*. As a technical manager from the strategy team reflected: “What I realized after spending time at ServAnalyze [the selected partner for the field validation] is that they have problems with their *data communication*, which is very tricky to manage.”

From the first interactions onwards, ServeIT had emphasized their capabilities for managing *data communication*. However, interactions with potential *data communication* partners in December 2010 had not alerted the strategy team to any major challenges associated with this element of the initiative, so they had not seen ServeIT’s capabilities as a particularly relevant. Now that they experienced in practice what managing *data communication* entailed through their collaboration with ServAnalyze, the other strategy team members agreed with the technical manager in seeing it as “a real strong point of ServeIT.”

After further interactions with TechCom and ServeIT on *data communication*, TechCom was discounted as a candidate for *service development*. ServeIT’s experience in coordinating *data communication* outweighed their remaining shortcomings. Their position was further strengthened when they merged with a firm with world-class data analytics capabilities. Although TechCom had been the preferred candidate as of Period 4, ServeIT was eventually selected as the actual service integrator partner. This was striking since ServeIT was initially treated as a mere benchmark generator and was the least attractive of the three potential partners (see Table 4, example 4a). Because of the interdependency between *service development* and *data communication*—which became apparent through developments in the *open services platform*—the strategy team ultimately chose ServeIT.

This shows that emerging interdependencies can constrain which resources are deemed suitable as well as offer new avenues for synergistic combinations. These sudden changes in which resources were sought-after resulted in unexpected shifts in partner preference. This frustrated potential partners who had been involved for a long time but were discarded unexpectedly. In particular, TechCom’s senior managers were disappointed and angry. They had spent a significant amount of time and money and were unaware of the new strategic configuration that emphasized *data communication* (C7, Table 4).

By February 2012, the strategy team managed to align the developments across each element of the strategic initiative. Through the iterations, they

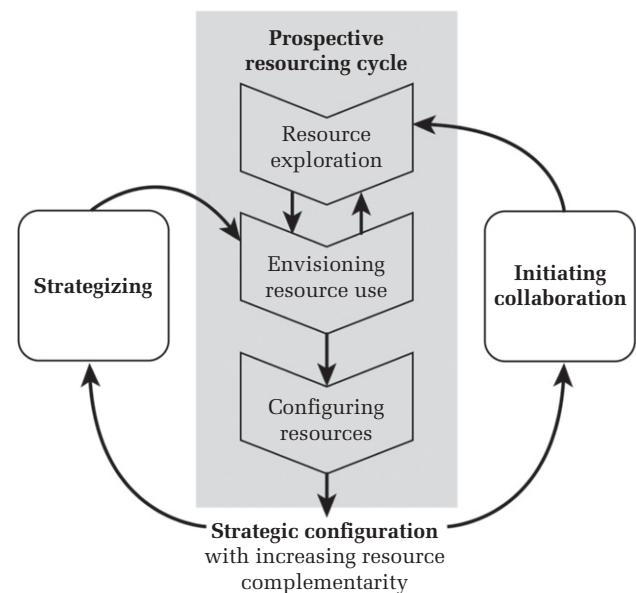
developed a detailed, crystallized service integration strategy that would leverage the synergy between external and internal resources and inform partner preferences. We concluded our field observations when contract negotiations had started for most of the elements and contracts were ready to be signed for some.

## A PROCESS MODEL OF PROSPECTIVE RESOURCING

In analyzing our case, we were struck by how frequently and radically the AutoCo managers changed their partner preferences and the prospective role of their firm as and when considerations about resource combinations evolved. Establishing resource complementarity was an emergent and highly variable trajectory, leaving AutoCo’s members concerned about the quality of the process and some potential partners frustrated. While resource complementarity was increasingly established, the route toward it was far from straightforward.

To explain these dynamics, we developed a process model of prospective resourcing that explains how managers create resource complementarity to articulate an innovative strategic initiative and initiate collaboration (see Figure 2). The novelty and complexity of strategic initiatives make it very difficult, if not impossible, for managers to determine upfront how to use and combine resources synergistically.

**FIGURE 2**  
**Process Model of Prospective Resourcing**



Our case vividly illustrates this challenge—AutoCo's partnering needs were unknown upfront and only emerged through prospective resourcing in interaction with more than 30 potential partners (for examples, see Table 3).

Prospective resourcing is an active process through which actors take external and internal resources and create complementary combinations from them in interaction with an emerging strategy. In line with earlier work on resourcing (e.g., Feldman, 2004; Sonenshein, 2014; Wiedner et al., 2017), prospective resourcing underscores that although resources have innate qualities, they only reach their potential as resources when actors act upon these qualities by deploying them for a particular purpose. Resourcing is prospective if the eventual value of the resources depends on their future use. Through prospective resourcing, managers create resource complementarity as they turn resources into synergistic combinations that serve the development of a strategic initiative, which may involve the discovery of interdependencies between resources.

Our process model (see Figure 2) visualizes that prospective resourcing consists of three sub-processes: (1) resource exploration, (2) envisioning resource use, and (3) configuring resources. Resource exploration and envisioning resource use may occur in parallel for the various elements of a strategic initiative and utilize different potential partners (see the stacked gray boxes in Figure 2). When configuring resources, managers integrate these parallel streams of action. In innovative strategic initiatives with multiple partners, managers may need to engage in *iterative* cycles of prospective resourcing to construct increasing resource complementarity, advancing the strategy jointly with these partners, to ultimately formalize collaborations. Thus, prospective resourcing drives the interplay of strategizing and the initiation of collaboration by creating complementary resource combinations. We further develop the processes of prospective resourcing and their implications below.

### Resource Exploration

Resource exploration is the act of managers familiarizing themselves with resources to understand their potential value. It is done purposefully and collaboratively during interactions with potential partners, who explain and demonstrate their resources and experiment with their use. Such exploration is guided by initial ideas about potential

complementarities and external resources the strategic initiative may need.

The AutoCo case shows that identifying what an external resource entails precisely and what can be achieved with it results from *interactions* with potential partners. Our process model illustrates that resource exploration typically focuses on a specific element of a strategic initiative (see the stacked gray boxes in Figure 2). Repeated resource exploration with multiple potential partners may be needed for managers to become familiar with the potential value of such resources. Resource exploration requires the creativity of both the potential partners and the focal firm. Hopeful partners need to probe their resources to identify what value these can deliver for the focal firm's initiative. Actors from the focal firm need to conjugate the outcomes enabled by such resources with the emerging strategy. For example, when ITCorp demonstrated their data analytics tools in a workshop, members from AutoCo and ITCorp jointly considered potential uses of these tools, thereby tailoring their resources to AutoCo's initiative.

During resource exploration, managers may learn about potentially valuable resources of which they were unaware. Potential partners can showcase their resources and steer the initiative in a direction that suits their specific resources. Recall for example that ITCorp proactively demonstrated their tools for supporting service development, which AutoCo adopted as an integral part of its initiative. Similarly, TechCom alerted AutoCo managers to the importance of device management, thereby signaling interdependencies between the connectivity hardware and service integration elements of which the managers had been unaware.

### Envisioning Resource Use

As managers familiarize themselves with external resources, they can more clearly envision how such resources might support their initiative, which in turn helps them to more specifically define their resource needs. Envisioning resource use means thinking through options for deploying external resources to advance particular elements of an initiative. The options generated during resource exploration shape the envisaged resource use. Recall, for example, that the AutoCo managers did not know about the potential usages of data analytics. Only after managers became aware of data analytics' potential value through resources exploration with ITCorp, did analytics become a central element for the service development they were envisioning.

Over time, the processes of resource exploration and envisioning interact (see the recursive arrows between these concepts in Figure 2). Managers draw on their increasing familiarity with possible external resources and focus more on those that will best suit their strategy. Knowing which resources the firm does not have directs further resource exploration across the elements of the initiative. Recall how ITCorp's suggestion to use their data analytics and SDK resources in Periods 3 and 4 alerted AutoCo managers to the importance of device management and, in turn, offered guidance for interactions with other potential IT integrators and connectivity hardware partners. Because the envisioning of different elements is shaped by interactions with various potential partners—who may all attempt to steer resourcing over time, developments in the separate elements can begin to diverge, which calls for new strategic configurations.

### Configuring Resources

The process of prospective resourcing is punctuated by moments of configuration. Since strategies consist of multiple constitutive elements that interact (e.g., Quinn, 1980), managers need to contemplate how resources considered for different elements relate to the emergent strategy. In the AutoCo case, distinctive elements required different external resources and partners and were thus developed in parallel (visualized as stacked gray boxes in Figure 2). The challenge is then to identify how multiple partners' resources can be *configured* into synergistic combinations to move the initiative forward as a whole. The process of configuring resources refers to the alignment and integration of strategizing across elements.

Configuring resources involves the mutual adjustment of the emergent strategy, its constitutive elements, associated resource needs, and the preferred partners. For instance, after the AutoCo managers were alerted to the need of device management resources by potential partner TechCom, they changed their strategy for service integration and the profile for the service integrator partner to include device management resources (see C6, Table 4). This decision eventually impacted the development of other elements. For example, to ascertain the specification of the connectivity hardware, the managers had to decide who should develop the software for the connectivity hardware. Should it be AutoCo, or the connectivity hardware partner, or the service integrator? This question required AutoCo's

managers to consider how to configure the resources. The process of configuring resources asks everyone involved to zoom out and to consider how combinations of external and internal resources could help realize the strategic initiative as a whole. In this case, only by initiating multiple, simultaneous interactions (rather than dyadic interactions) could the AutoCo managers conceive in more detail the interdependencies between the separate elements and how to combine resources for these elements in a synergistic whole.

Configuring may involve (re)prioritizing, changing, adding, or discontinuing elements and associated resources. In the AutoCo case, some elements were subsumed under others (e.g., in the service integration configuration (C4, Table 4), "IT platform" became part of "service development"), new elements were created (e.g., the field validation), and some elements were foregrounded over others. The emphasis placed on various elements clearly changed over time, as reflected by the shades of gray in Figure 1 and the overview of changes to strategic configurations C1–8 across periods in Table 4.

As they were unfamiliar with some of the important external resources, the AutoCo managers could not have foreseen every interdependency that would arise between potential resources—some potential partners played an important role in identifying interdependencies between elements. Because the AutoCo managers only gradually understood such interdependencies, they needed to revisit the whole set of choices, which often resulted in further iterations of prospective resourcing and new or adjusted strategic configurations (see the feedback arrow in Figure 2 and the changes in C1–8 in Figure 1). Over time, resource complementarity increased. Synergistic resource combinations were found by mutually adjusting the initiative's elements, which served to change the content of the strategy overall.

### Prospective Resourcing and Strategizing

Prospective resourcing did not propel strategizing in a straightforward way in the AutoCo case. Reconfigurations interrupted progress from resource exploration to envisioning resource use. Reconfiguring drastically reoriented strategy content at multiple moments in time (e.g., the first three strategic configurations [C1–3] in Figure 1 were discarded altogether, which required starting anew) and reflected how AutoCo's prospected strategic role in the multi-party collaboration evolved over time. For example, in the first configuration (see C1, Table 4),

the managers began by envisioning AutoCo as the central actor who would coordinate the activities of its collaborations partners, but changed their plans to search for a service integration partner in Period 2 (see C4, Table 4).

The need for iterative prospective resourcing is affected by the novelty of the strategic initiative and the interdependencies between internal and external resources (Carlile, 2004). For the more novel elements, managers could not have anticipated which external resources the potential partners would introduce them to, how such resources might support the strategic initiative, and which interdependencies between elements might emerge. Indeed, for novel elements such as service development (Table 3), more radical and sudden changes in strategy emerged compared to the relatively straightforward specification for the more familiar connectivity hardware. Thus, any outcome of resource exploration will remain provisional until actors can oversee how potential uses of resources can be combined specifically across elements in configurations.

For strategic initiatives with a high degree of novelty, potential partners have more space to proactively suggest external resources and their potential uses. Interactions with potential partners can lead to unexpected, surprising new insights. This increases the leeway potential partners have to shape the focal firm's strategizing: by showcasing the potential outcomes that their resources afford, external actors can shape how managers in the focal firm envision their strategic objectives and thus drive a strategic initiative in a direction that will benefit the managers. For example, ITCorp kept pushing data analytics as an important resource for AutoCo's initiative and, as a result, the AutoCo managers made data analytics a central resource in strategic configurations C4–8 (Table 4).

Over time—as novelty decreases—changes in prospective resourcing become less abrupt and more incremental, as complementarities between resources are identified and worked out in more detail. Early in the development of the strategic initiative, some strategic configurations were completely replaced (C1–3, Table 4), whereas later on configurations were adapted more incrementally (C4–8, Table 4).

In the AutoCo case, this decrease in amplitude can partially be explained by the managers' approach. They decided to tackle the more novel elements first and handle the more familiar elements later in the process. Because the more novel elements yielded the most changes, this approach helped to reduce the

amplitude of changes over time. Nevertheless, considering less novel elements in later periods also introduced interdependencies that triggered reconfiguring the projected use of resources, and thus shifts in their partner preferences and the emerging strategy.

Overall, exploring resource with potential partners offers managers a glimpse into the value potential resources can offer a future collaboration. Yet a more complete picture can only emerge after configuring those resources. Considering interdependencies between elements by envisioning resource combinations leads to emerging resource complementarities.

### **Prospective Resourcing and Initiating Collaboration**

The AutoCo case showed that AutoCo's preferred partner profile—and, in fact, the definition of what “preferred” meant—changed often and radically. In the early stages, AutoCo managers determined which elements of the initiative would need external partners and had some ideas about which external partners might be helpful based on prior experience and market scanning. However, only after these managers had identified precise resource needs together with these potential partners were they able to envision the specific roles these potential partners might play and evaluate their fit with the emerging strategic configuration. Recall how the preferred partner for service development changed from ITCorp to TechCom to ServeIT because of the changing emphasis from data analytics to device management to wireless data communication management.

The idiosyncrasies of each potential partner's resources were an additional source for changes to the overall initiative strategy. Different potential partners did not just offer alternatives for the same piece of the puzzle, but brought puzzle pieces to the table that were shaped differently. For example, after the shift from ITCorp to TechCom as preferred IT integrator partner, AutoCo's preferences for a connectivity hardware partner shifted as well (see C5 and example 5, Table 4). In other examples, collaborating with one particular partner would be compared with the option to collaborate with two separate firms. For example, ServeIT proposed to coordinate data communication as well as device management and analytics, thereby simplifying the multi-party collaboration from AutoCo's perspective.

The strategic behaviors of AutoCo and of its potential partners affected partner selection. The



novelty associated with the strategic initiative meant that managers could only define a set of criteria with which to systematically evaluate different potential partners after having engaged in the process of prospective resourcing, and not before—as is common practice in partner selection processes. Because each interaction with their potential partners yielded additional options to consider, the AutoCo managers needed to prolong their informal access to these external resources. Meanwhile, potential partners were willing to organize workshops and their resources in the prospect of a fruitful new collaboration. We observed how the AutoCo managers used these expectations to explore the resources of multiple partners in parallel, thereby garnering multiple options for realizing their strategic initiative and effectively postponing formal commitment to any specific partner as they took these options on board. After the AutoCo managers had identified potential external resource partners, they approached others with specific requests. This enabled them to carefully compare the resources of competing partners, and identify the best possible collaboration partners. Potential partners, on the other hand, used interactions to test the waters regarding the likelihood and value of a collaboration. Repeated interactions provided the opportunity for hopeful partners to steer the initiative in a favorable direction and strategically maneuver their resources toward a central position in the emerging strategic configuration.

All these twists and turns in strategizing can result in disappointments for potential partner firms. Rising expectations about collaboration may prove inappropriate as new configurations emerge, driven by interactions with competing candidates. Such unfulfilled expectations will result in tensions. For example, for ITCorp the seemingly sudden emphasis on device management caused tensions, as the expectation they had developed up to that point was that data analytics was going to be the most important resource, and they were so disappointed that they were reluctant to collaborate with AutoCo again in the near future (e.g., see examples 4 and 6 in Table 4). We found that the risk of frustrating potential partners was higher for partners who contributed resources for the more novel elements of an initiative because these elements were the most prone to volatile changes. Somewhat ironically, the decision to involve potential partners for novel elements early on implied that these partners were involved in the development of the initiative for a longer period and eventually faced a higher risk of developing expectations that ended up unmet.

## DISCUSSION AND CONCLUSION

Based on an in-depth study at an international automotive firm, we developed a process model of prospective resourcing that explains how firms can establish resource complementarity to advance strategizing and initiate interorganizational collaboration. In this section, we describe our contributions to the literature on collaboration, strategizing, and resourcing, and discuss the boundary conditions of our insights.

### Theoretical Implications

**Contributions to research on collaboration and resource complementarity.** The key insight for the literature on interorganizational collaboration is that resource complementarity is interactively created through prospective resourcing instead of being a pre-existing condition for collaboration. Although resource complementarity is the primary explanation for why firms seek interorganizational collaboration, researchers have offered limited insight into how it is established (Wang & Rajagopalan, 2015). A dominant assumption has been that resource complementarity can be identified *ex ante* (e.g., Soda & Furlotti, 2017), based upon managers' cognitive abilities or embedded contacts, so that resource gaps can be determined like missing puzzle pieces.

Our findings on prospective resourcing question these assumptions and have implications for the broader relation between collaboration and strategy. We show how resource complementarity is created over time through prospective resourcing as a process of joint actions, rather than through managerial foresight or their superior cognition (Ahuja et al., 2005; Barney & Arikan, 2001; Helfat & Peteraf, 2015). Only through prospective resourcing with potential partners could AutoCo's managers envision what strategic configurations might be realized and assess their synergistic value. Moreover, relying on embeddedness in existing networks to judge the potential value that external resources can provide (Berends, Van Burg, & Van Raaij, 2011; Gulati, 1995; Li et al., 2008), would limit the set of resource combinations to be considered (Mitsuhashi & Min, 2016). Having weak ties to distant resources (Granovetter, 1983) is also insufficient—managers not only need to be aware of the existence of such resources, they also need to enact them through subsequent prospective resourcing cycles to envision what outcomes might be achieved and how synergistic value can be created.

More broadly, our process model of prospective resourcing reverses the prevailing logic that strategy is an initial condition (Doz, 1996; Ring & Van de Ven, 1994) that precedes and determines collaboration. As the AutoCo case illustrates, complementarities can only be defined after a focal firm has explored potential synergies between internal and external resources in collaboration with potential partners. The potential value uncovered during such early interactions will subsequently shape the strategic initiative. Strategy can also emerge from collaboration in situations where collaboration is required to explore resource complementarity. Thus, instead of a linear progression from strategy to partner selection to collaboration formalization (e.g., Gulati et al., 2012; Holmberg & Cummings, 2009), we find a recursive relationship between strategy and collaboration, because potential partners influence strategizing through early interactions.

This recursive relationship between strategy and collaboration is significant because it goes against the prevailing “missing pieces” assumption in the literature and prevalent approaches of practitioners that seek to determine resource gaps upfront. This has implications for how firms initiate collaboration for strategic renewal. Our case shows that neither an overview of all potential partners nor a complete set of selection criteria can be determined upfront. Thus, instead of a funnel-like selection process in which a focal firm zeros in on a preferred candidate (Chung et al., 2000; Holmberg & Cummings, 2009), our model suggests prolonged consideration of multiple partners in different strategic configurations through cycles of prospective resourcing.

The AutoCo case suggests that protracted consideration of multiple partners could also backfire when partners’ frustration mounts and reflects back on a focal firm. In the AutoCo case, the involvement of external actors contributed to a strategizing process with radical reorientations that appeared messy to some AutoCo members and was frustrating for some of the potential partners. The sudden changes in envisioned strategic configurations resulted in shifts of what resources the focal firm thought it needed and which partners they preferred. This, in turn, exhausted various potential partners to such an extent that they wanted to avoid collaborating with AutoCo in the near future. Thus, while prospective resourcing may well be a suitable mechanism to develop effective strategic configurations, it does not happen in a social vacuum. The iterative nature of prospective resourcing can burn social capital and risk future joint strategizing efforts.

**Contributions to research on strategizing.** Our findings on prospective resourcing offer new insight into how strategy emerges. By analyzing both the development of strategy content (the elements) and the processes through which emergent strategy further develops (the iterative cycles of prospective resourcing), we contribute to understanding the connection between strategy process and content (Burgelman et al., 2018; Johnson, Melin, & Whittington, 2003). Through our prospective resourcing model, we show how the creation of new resource combinations shapes strategizing under conditions of novelty and complexity. Strategy scholars have argued that these conditions make rational strategic analysis inefficient (Farjoun, 2008) and, instead, proposed emergent approaches that emphasize action, experimentation, and learning (Burgelman, 1983; Mintzberg & Waters, 1985; Quinn, 1980; Wiltbank, Dew, Read, & Sarasvathy, 2006). We offer prospective resourcing as a specific mechanism among emergent approaches.

In prospective resourcing, strategy emerges through the creation of new resource combinations in interaction with external actors. The creation of new resource combinations involves “part-whole” dynamics that may result in radical reorientations in strategy content. Whereas other emergent approaches—such as experiential learning—are often associated with local incremental search (Gavetti, Levinthal, & Rivkin, 2005; Quinn, 1980), prospective resourcing entails changes that are more radical. By creating strategic configurations, actors bring together separate parts of a strategic initiative into a synergistic whole by conceiving the interdependencies between the elements of a strategy. The AutoCo case shows that as long as the elements of a strategic initiative are developed independently, progress in strategizing may seem straightforward. However, when managers shift their attention to configuring the whole and assess interdependencies between elements, radically different strategy options can be explored. Thus, our findings show how emergent strategy approaches can go beyond local search (Farjoun, 2008).

Our findings also reveal the role that external actors play in these radical changes—thereby responding to various calls for insight into the role of external actors in strategizing (Jarzabkowski & Spee, 2009; Laine & Vaara, 2015; Whittington, Caillaud, & Yakis-Douglas, 2011). Creating complementary resource combinations requires familiarity with partners’ resources that a focal firm typically lacks, particularly in the case of an innovative strategic

initiative. While Kannan-Narasimhan and Lawrence (2018) and Regnér (2003) showed how lower-level and peripheral actors are important for strategizing because they are close to resources and able to suggest ways to use them, we extend this beyond the boundaries of the organization. Our findings show how a focal firm relied on potential partners to propose resource uses and outcomes, to recognize interdependencies among the elements of the initiative, and to suggest ways to address these.

This dependence on external actors can induce strategic behavior of both the focal firm and its potential partners in the strategizing process. Because the focal firm relies on potential partners for identifying possible complementarities, it opens itself up to the *strategic influence* of external actors. Resource exploration may seem to involve neutral information exchange between potential collaboration partners. Yet, as our study shows, external actors can frame a strategic initiative in terms of their own resources, thereby guiding internal actors to “see” their needs in the light of a potential solution and maneuvering their resources to a central position in the emerging strategic configuration so that others rely on them. This influence of external actors extends beyond the provision of knowledge (as described by Regnér, 2003; Seidl & Werle, 2018) and is less transparent for the focal firm compared to examples of the involvement of external actors that is deliberately pre-structured by the focal firm (Hautz, Seidl, & Whittington, 2017; Whittington et al., 2011). A managerial implication of this is that a focal firm must be alert to such influences on strategizing. To counteract such influences, the focal firm can try to keep its options open so that it can explore potential synergies created by different strategic configurations before committing to any particular partner.

**Contributions to literature on resourcing.** Our study extends prior work that emphasized the strategic significance of resourcing (e.g., Howard-Grenville, 2007; Kannan-Narasimhan & Lawrence, 2018; Wiedner et al., 2017). Such work has shown that the value of resources depends on their connection with strategic objectives (Wiedner et al., 2017). Our findings shed light on how resources get value—particularly for situations where potential resources are not readily available and when bundles of resources are needed. Building upon work by Feldman and Worline (2011, 2016) and Kannan-Narasimhan and Lawrence (2018), we show how a practice perspective offers additional insight into resource-based perspectives.

Thus far, the resourcing literature has shown that actors analyze the consequences and outcomes of putting resources to use, which shapes their subsequent actions (Feldman, 2004; Howard-Grenville, 2007; Sonenshein, 2014). We add that targeting external resources that are more distant requires more iterations to mutually align objectives with internal and external resources because actors will find it more difficult to envision their potential value. Moreover, direct experimentation with external resources requires actors in a focal firm to first grant access to potential resources. Such dependence on external resources implies that outcomes cannot be directly realized and are therefore difficult to analyze. The joint actions that underlie prospective resourcing are the starting point for identifying potential resources and experimenting with their uses through exploring, envisioning, and configuring resource combinations.

Resource-based perspectives suggest that strategic value may particularly accrue from resource bundles (Barney, 1991) and emphasize the need to “orchestrate” bundles of resources in a changing environment (e.g., Sirmon et al., 2007, 2011). However, insight in how bundles obtain strategic value is thus far limited, as scholars have not empirically examined (re)configuration processes. We show that bundling is not a matter of combining existing resources analogous to connecting pre-shaped puzzle pieces. Actors need to explore new uses of resources in combination with other resources to create synergy. This may lead to envisioning new strategic objectives, which, in turn, may require further prospective resourcing. Our findings show that connections between resources have to be actively and jointly designed. In contrast with the orchestration metaphor (Sirmon et al., 2007, 2011), our findings suggest a more distributed process because resourcing requires familiarity with the resources and depends on actors and their activities at various places within and across organizations.

These insights imply that the order in which resources are explored and combined matters. As the exploration of resources for novel elements generates the most surprising insights and unexpected interdependencies, it triggers most changes in strategizing. By addressing these novel elements first, as managers did in the AutoCo case, managers may limit the amount of rework that is needed later for elements that are more familiar. Thus, over time, complementarity between resources can become stronger in later configurations, creating synergistic resource bundles.

## Boundary Conditions

We focused this study on an innovative strategic initiative that required interorganizational collaboration. The novelty and complexity of such an initiative emerged as key conditions for the processes we identified and thus delineate the scope of our theory. There is firstly the novelty associated with the strategic initiative, which meant that the required resources were distant and unfamiliar to AutoCo managers. As the initiative was innovative vis-a-vis the state of the industry, it was not possible to emulate other firms' approaches. This called for intensive prospective resourcing, and allowed for external influences and radical reorientations of strategizing. A second boundary condition is the complexity of the strategic initiative. The digital services that AutoCo aimed to add to its portfolio required developing a new infrastructure, consisting of many elements that depended on several different types of partners. The interdependencies between elements, resources, and partners likely increased the radical shifts in the emerging strategy over time.

In less innovative strategic initiatives, novelty and complexity are lower, and these will likely require fewer cycles of prospective resourcing, as it will be easier to establish resource complementarity early on. Yet, since most strategic initiatives will have some innovative elements, it is likely that they will require some degree of prospective resourcing. Strategic initiatives can focus on collaboration for product and service innovation, as in our case, but may also concern other types of innovative strategic objectives, like internationalization or business model renewal.

Finally, our findings may also be influenced by the nature of the resources that were needed. Specialist technical knowledge and capabilities were sought to develop future services precisely because the focal firm did not possess them. The key actors were therefore in no position to assess what would be needed and to envision what could be accomplished with certain resources. Other external resources, such as financial resources or existing distribution channels, will require less prospective resourcing to initiate collaboration.

## CONCLUSION

Managers who pursue a strategic initiative for which they need external partners have to deal with a conundrum: to further their initiative, they need to ascertain what combination of resources they need, but to know what constitutes such a synergistic

combination, they need to have a complete picture of the strategy. For novel and complex initiatives, it is virtually impossible for actors to determine ex ante which complementary resources will be needed. The AutoCo case illustrates that resource complementarity is a collaborative accomplishment that requires iterations between envisioning the "parts" of the initiative and the emerging strategy as a "whole" and shows how prospective resourcing introduced strategic behavior of both a focal firm and potential partner firms. Through iterative cycles of prospective resourcing, managers can overcome this conundrum and initiate collaborations. The intricate connections between the initiation of collaboration and the development of firm strategy calls for more research into the connections between interorganizational and intraorganizational processes and cross-fertilization between research on strategizing and interorganizational collaboration.

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